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Safety First?:
Looking at a Non-traditional Safety Training Program for Spanish-speaking Construction Workers

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Safety First?: Looking at a Non-traditional Safety Training Program for Spanish-speaking Construction Workers

by

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Thesis

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Abstract

Safety First?: Looking at a Non-traditional Safety Training Program for Spanish-speaking Construction Workers

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The University of Texas at Austin, 2012

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Construction is a very deadly industry with Texas having the highest rate of deaths of construction workers of any state.[1] Hispanic workers are at an even higher risk than white, non-Hispanic workers for being injured or killed while working on a construction site.[2] However, traditional materials available through the Occupational Safety and Health Administration (OSHA) to train workers in job safety cannot effectively reach the Hispanic construction worker population because of language and educational barriers. This study examines a non-traditional safety training program tailored specifically for Spanish monolingual construction workers in order to reach these otherwise hard-to-reach workers, created by Workers Defense Project (WDP) in Austin, Texas, through a Department of Labor grant. Through participatory learning techniques, WDP has had a high rate of success in educating low-literacy, Spanish monolingual construction workers on workplace safety and rights. Through further evaluation of this

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[1]Bureau of Labor Statistics, U.S. Department of Labor, "National Census of Fatal Occupational Injuries in 2010 (Preliminary Results)," news release, August 25, 2011, 11.

[2]Xiuwen Dong et al., "Effects of Safety and Health Training on Work-Related Injury Among Construction Laborers," *Journal of Occupation and Environmental Medicine* 46, no. 12 (December 2004): 1222-8.

program, the unique methods utilized in this training can be developed and applied in other areas and industries to reduce the number of injuries and fatalities in construction and other hazardous industries.

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1: Introduction

The primary motivation for this study was to create a better understanding of how to improve safety training for Hispanic construction workers who face highly dangerous working conditions but are not currently being reached by available training methods and materials. This concern emerged out of my volunteer work with an immigrant workers' organization in Austin, Texas and my academic interest in the growing Hispanic immigrant population in Texas. My hope is that my observations and conclusions will contribute to the creation of effective safety training programs for Hispanic workers in construction as well as other hazardous industries in which Hispanic immigrants are heavily concentrated.

My study is based on my 15 hours of volunteer work a week at the Workers Defense Project (WDP), a non-profit organization that serves the immigrant worker community on serious workplace issues. Through the work of volunteers, member workers, and a small full-time staff, WDP recovers unpaid wages, aids workers with injuries gain compensation, provides educational services such as English and safety classes, and promotes legislation to change the legal system to improve working conditions for all workers.

WDP is membership based, with the majority of new members taking part in the organization because of support offered for wage-claim, injury, and discrimination cases against employers. It was established in 2002 and is now composed of 11 staff

members, along with volunteers and hundreds of worker members and their families. In addition, it is guided by a 9 person Board of Directors that includes both community leaders and worker members.

From the summer of 2011 through the summer of 2012, I served as one of many volunteers with the Workplace Justice Program (WPJ) administering trainings developed by WDP. These included "Know your rights" trainings given to all first time attendees to educate them about their rights as a worker, as well as the safety trainings that this study focuses on.

Through a Susan Harwood Training Grant from the Occupational Safety and Health Administration, the WPJ has created a highly unique training program specifically tailored for low-literacy, Spanish monolingual construction workers. OSHA defines Spanish monolingual workers as "hard-to-reach" workers and distributes these grants to organizations working with Spanish speaking populations. Although the students are mostly construction laborers, WDP has found that traditional OSHA training materials are not suitable for these workers not only because of language differences, but also literacy barriers. Through this grant, WPJ has been able to create materials that move away from traditional lecture based, text-heavy trainings to activities and visual based trainings that may be more accessible to members.

As a workers' organization, unlike OSHA, WDP is in a position to work directly with the workers and is able to update and alter training materials based on input from workers as well as the results and observations from individual trainings. Because of this ability to tailor materials and methods specifically for low-wage Hispanic workers,

WDP has been able to create trainings better suited for these workers that are not currently being served by traditional materials. Although these trainings have been developing over the last year, implementation of these trainings is still in its early phase, making a study of these trainings beneficial to improving future trainings for WDP and also for other organizations seeking to train Hispanic construction workers.

Personal Observations

WDP is a membership based organization, meaning that workers act as volunteers to help with every aspect of the organization. The Workplace Justice Program assists thousands of low-wage workers each year by recovering wages for workers who have been denied payment for their work and assisting injured workers receive medical attention and compensation. New workers come to the weekly meeting each week to seek help with workplace issue cases such as these. These meetings are used to review individual workers' cases and to take new cases or members. My primary role has been to give the "charla", which is a 45 minute training for new attendees about workplace rights, what the organization does, and the benefits of working within WDP community. At the end of the training, workers are asked to fill out an initial intake form describing their case, including employer information and a description of the issues they are facing.

Most of the members of WDP are monolingual Spanish-speaking immigrants, and all forms provided at WDP are available in both English and Spanish. However, in

addition to being Spanish monolingual, attendees sometimes have limited literacy. On most occasions, at least one attendee needs assistance with the form because of an inability to read or write.

In addition to Tuesday night trainings, I have also been involved in safety trainings given to workers on a varying schedule each month. At the end of these trainings, WDP administers surveys to gauge the satisfaction level of students with the training material. Some questions are given in a scale format, such as "On a scale of 1-5, how much did you like the instructor?", while others are multiple choice, such as "This material was: A. All New, B. Mostly New, C. Somewhat New, D. Nothing New". Each student receives a paper copy of the survey to fill out anonymously. When conducting the surveys, WDP always encourages volunteers to read the questions aloud to the group so that those who are less literate may follow along. In addition, volunteers are asked to sit with individuals who still have not filled out the survey after questions are read aloud to assist them with completing the survey. Although the volunteers read the questions and guide the workers as a group and individually through the answer choices, they often struggle with the survey. Due to their lack of familiarity with any reading structure, some attendees are unable to follow the flow of the form from top to bottom without individual assistance. Also, some workers do not understand how to choose a number on a scale to convey satisfaction level, and even after explanation that 1 is unsatisfied while 5 is extremely satisfied, some workers will instead ask to skip the question and it is not unusual to receive blank surveys when workers do not want to receive any additional help. This constitutes ample proof that traditional training

methods that are text reliant and use traditional survey methods to measure understanding are not adequate for use among the workers. Instead, in order to train workers in an effective manner, it is clear that new methods for learning are necessary.

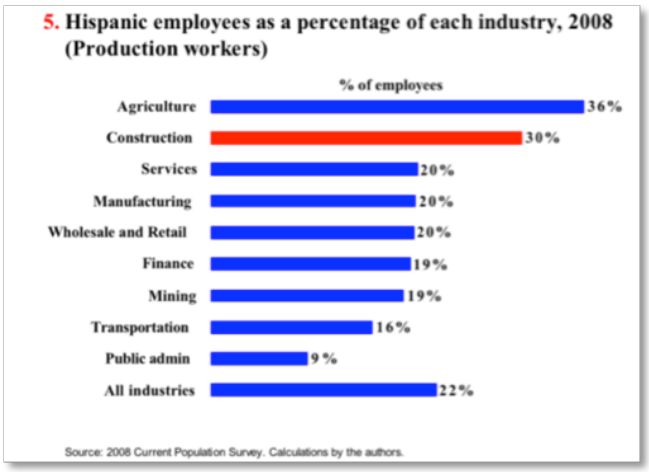
When developing new safety trainings programs, WDP had to take these facts into consideration. Through past safety trainings as well as members' comments, it was clear that although contractors are responsible for providing both safety equipment and training to their workers so that they may complete their jobs safely, many workers lack the necessary information they need. Workers' knowledge on safety ranges from expert to extreme novice Although some workers may be aware of safety regulations, they do not always receive the equipment and training they need from the contractors, and often work alongside others who are less knowledgeable. Moreover, many workers who are not documented often express fear during safety trainings that if they ask the supervisor to provide them the necessary equipment that they will be fired or reported to immigration authorities. Because of this, the training sessions sponsored by the WPJ do more than train workers on safety and health in the workplace. It also empowers workers by educating them about their rights and giving them strategies for organizing at a job site to improve safety standards without fearing retaliations. Some workers come to WDP without realizing that despite being undocumented, employment safety and health laws apply to their work environment and that they are entitled to the same securities offered citizens in this country.

The next section will discuss the current conditions of Hispanic workers in the construction industry to highlight the importance of creating innovative trainings methods to reach these at-risk workers.

2: Hispanic Immigrants in Construction

Hispanic immigrants are highly concentrated in construction, making this a key industry to create effective safety trainings for these workers. The construction industry employs the second highest number of Hispanics, second only to agriculture. In 2008, 30% of employees in the construction industry were of Hispanic origin, compared to 22% of industries overall. Immigrants represent 84% of the Hispanic work force in construction, while 59% are born in Mexico and another 25% are born in other Latin American countries.[3]

Figure 1[4]



Traditional OSHA publications, which are text-heavy and in English, cannot and have not effectively reached the Hispanic immigration population. According to a 2009

[3]Rosemary K. Sokas et al., "An Intervention Effectiveness Study of Hazard Awareness Training in the Construction Building Trades," *Public Health Reports* 24, no. 1 (2009), 160.

[4]Center for Construction Research and Training, "Hispanic Employment in Construction," *CPWR Data Brief*, November 2009, 6.

survey data of Austin's 50,000 construction workers, 61% have less than a middle school education and many are monolingual Spanish speakers. This alone means that trainings reliant on complex readings, especially in English, could not be sufficient materials for most of Austin's construction workers. This is reflected clearly in the fact that, "about 64% of them [surveyed construction workers] had received no health and safety training." [5] These issues and lack of safety training may be reflected in the high number of fatalities for Hispanic construction workers compared to white, non-Hispanic workers seen at least over the last two decades. According to one study, "from 1992 to 2005, the death rate for Hispanic construction workers has been consistently higher than the rate for white, non-Hispanic workers."[6]

Fatal falls, which make up the largest percentage of fatal construction injuries, highlight the disproportionate dangers that Hispanics and immigrants face in construction. Fatal falls made up 35% of all deaths in construction in 2010. The majority of fall fatalities occurred among workers who had been employed for less than one year. They made up 64.7% of Hispanic worker deaths, but only 52.9% for white, non-Hispanic workers. Foreign-born workers face the highest risk of all. Nearly 80% of Hispanic construction workers involved in fatal falls on construction sites between 2003

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[5]Workers Defense Project and Division of Diversity and Community Engagement at the University of Texas at Austin, *Building Austin, Building Injustice*, report (n.p.: n.p., 2009),13.

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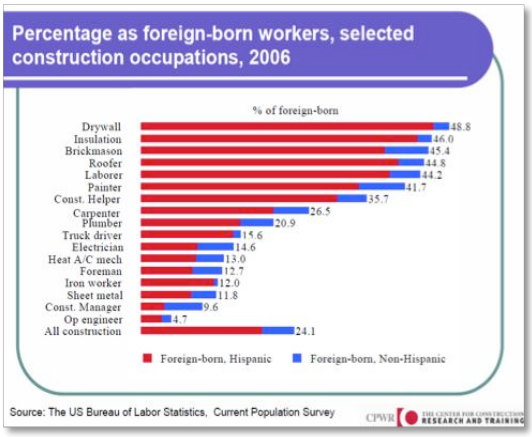
[6]Xiuwen Dong et al., "Effects of Safety and Health Training on Work-Related Injury Among Construction Laborers," *Journal of Occupation and Environmental Medicine* 46, no. 12 (December 2004): 1222-8.

and 2006 were foreign-born, and about 70% of these foreign-born workers were from Mexico. [7]

The typical construction occupation of foreign-born workers largely impacts their high-risk of injury. Although foreign-born workers made up only 24.1% of the construction work force in 2006, they made up 44.2% of construction laborers.

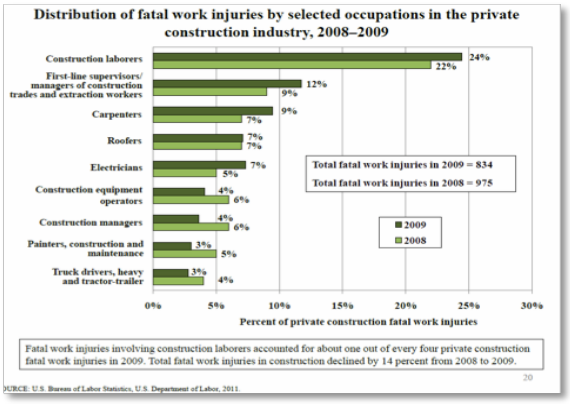
Figure 2[8]



[7]Maria J. Brunette, "Construction Safety Research in the United States: Targeting the Hispanic Workforce," *Injury Prevention* 10, no. 4 (2004): 245.

[8]Sue Dong and Jim Platner, "Safety And Health of Hispanic Construction Workers," The Center for Construction Research and Training, accessed August 1, 2012, http://www.cwpr.com.

Figure 3[9]



Construction laborers accounted for 24% of all fatal injuries in 2009, far surpassing any other occupation. This places foreign-born workers at an unequal risk of fatal workplace injury compared to native-born workers who are represented throughout the occupational structure.

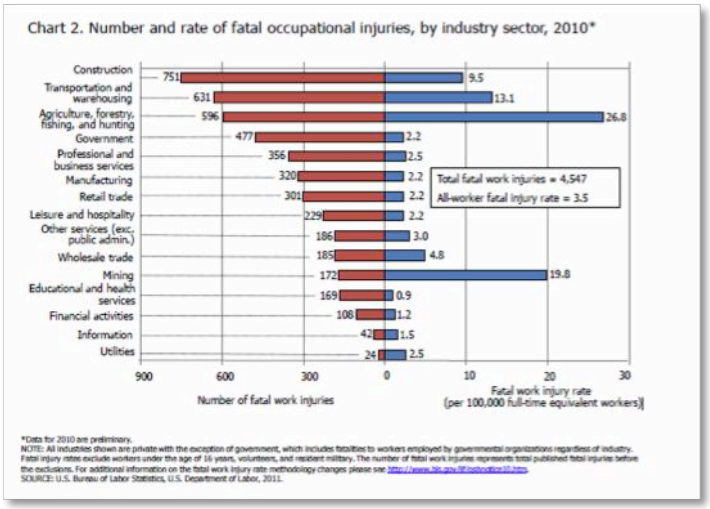
The high probability of deaths, particularly fatal falls, among Hispanic and immigrant construction workers calls for improved training to prevent these accidents with these workers and others in the industry. The majority of workers in Austin, however, have less than a middle school education, leading to a low-level of literacy. Consequently, training must be tailored their needs.

The Value of Targeted Trainings

[9] U.S. Bureau of Labor Statistics and U.S. Department of Labor, "Current Population Survey," Bureau of Labor Statistics, accessed August 1, 2012, http://www.bls.gov.

Hard-to-reach construction workers require training on OSHA regulations to guarantee the knowledge to protect themselves and improve the overall safety of the construction industry. This is extremely important since construction is an extremely hazardous industry for all workers.[10] The construction industry has the highest number of fatalities per year of any industry in the United States. In 2010, 751 construction workers were killed on the job, with falls and electrocutions making up 45% of these deaths.[11]

Figure 4[12]



Despite the dangers, many construction workers do not have the safety training necessary to identify and avoid common jobsite hazards, and some employers even fail

[10]Center for Construction Research and Training, "Hispanic Employment in Construction," *CPWR Data Brief*, November 2009, 1-17.
[11]"OSHA Commonly Used Statistics," Occupational Safety and Health Administration, accessed December 1, 2011, http://www.osha.gov/oshstats/commonstats.html.

[12]U.S. Bureau of Labor Statistics and U.S. Department of Labor, "Current Population Survey," Bureau of Labor Statistics.

to provide proper equipment. A case in point is the day laborers in the Washington, D.C., area. A recent study found that 79 percent of day laborers consider some of their jobs as hazardous, yet 81 percent reported that they had not received raining on job safety. More than half also reported they had not received the necessary safety equipment to prevent workplace injuries.[13] Although this only offers a glimpse into one community, laborers across the country, especially hard-to-reach workers, may not be receiving the necessary training and equipment, putting them at risk for injuries and death.

The importance of providing training to workers in construction is extremely clear. A review of eighty reports on training efforts concluded that safety training plays an important role in controlling jobsite hazards.[14] Additionally, a pilot study of both U.S. and Mexican born union construction workers found, "statistically significant improvements in health and safety knowledge and attitudes, hazard identification, and self-protective actions three months following a 10- hour OSHA Awareness class."[15] Surveys conducted three months after the training showed significant improvements in attitudes toward safety particularly among Mexican immigrant workers. After the training, Mexican workers were more likely than their American counterparts to identify and report hazards on the jobsite. This shows that even a relatively short safety

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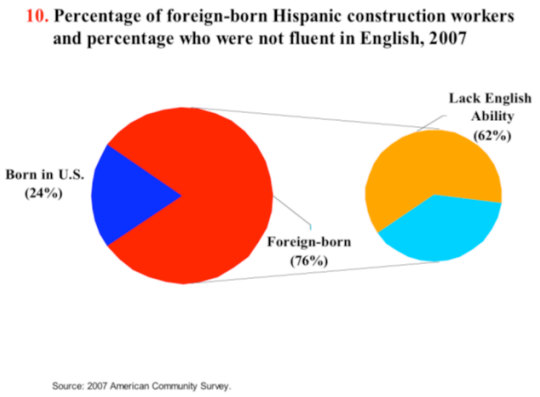
[13]Abel Valenzuela, Jr et al., *In Pursuit of the American Dream: Day Labor in the Greater Washington, D.C. Region* (Los Angeles: University of California, 2005), 2-7.
[14]Alexander Cohen and Michael J. Colligan, *Assessing Occupational Safety and Health Training: A Literature Review* (Cincinnati, OH: National Institute for Occupational Safety and Health, 1998), 23-27.
[15]Quintin Williams et al., "The Impact of Peer-Led Participatory Health and Safety Training Program for Latino Day Laborers in Construction," *Journal of Safety Research* 41, no. 3 (June 2010): 253-61.

training, particularly for Mexican immigrants, can play a substantial role in improving the safety practices of workers on construction sites. However, barriers for both workers and employers can prevent current traditional trainings from being effective, calling for improved trainings to overcome these obstacles. The two most significant obstacles are language difference and varying levels of education.

Language difference can be a significant obstacle to safety for untrained workers. Hispanic construction workers may be facing the more serious language-related problems. According to the Center for Construction Research and Training Data Center, in 2007 only 38% of the foreign-born Hispanic constructions workers in U.S. in understood English.[16]

Figure 5[17]



A study of Spanish speaking construction workers in a residential construction training program found that a lack of English proficiency keeps them from understanding on-site

[16] AFL-CIO, *Immigrant Workers at Risk: The Urgent Need for Improved Workplace Safety and Health Policies and Programs* (Washington, D.C.: n.p., 2005), 10.
[17] Center for Construction Research and Training, "Hispanic Employment in Construction," 9.

safety instructions, especially when English-speaking foreman or other bosses are unwilling or unable to reiterate information in Spanish.[18] One Texas construction worker said that, "Foremen get frustrated trying to explain to workers what to do or how to do it safely, because they haven't been trained or maybe they didn't understand English so they didn't learn how to do it. So, the foreman gets frustrated and just tells them to skip that part because they don't understand. They just do it without safety equipment or procedures."[19] This can be detrimental to the overall safety of a worksite, especially in Texas where there are such a high number of Hispanics employed in construction. [20] Because monolingual, Spanish-speaking workers may not be able to receive sufficient on-site training, it is even more crucial for these workers to receive outside training to meet their needs.

Immigrant business owners, such as the construction contractors who supervise workers and are responsibly for safety, could also benefit from targeted trainings. Mexicans make up the largest share of immigrant business owners in the U.S. Moreover, "Immigrants are nearly 30% more likely to start a business than nonimmigrants, and they represent 16.7% of all new business owners in the United States."[21] They face a number of problems, including the failure to use written contracts, the lack of knowledge on how to develop professional bids and work plans,

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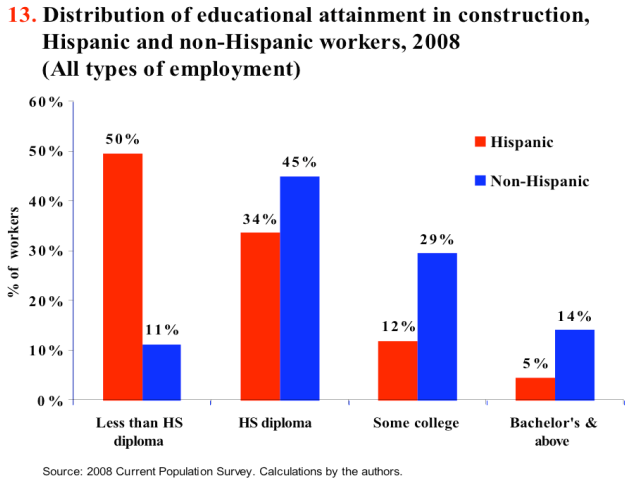
[18] AFL-CIO*, Immigrant Workers at Risk*:,10.
[19]Ibid.
[20]Center for Construction Research and Training, "Hispanic Employment in Construction,"*CPWR Data Brief*, October 2009, 1-17.
[21] Robert W. Fairlie, Estimating the Contribution of Immigrant Business Owners to the U.S. Economy (Santa Cruz, CA: Small Business Administration Office of Advocacy, 2008), 10-13.

and the widespread fear of overbidding. Many also register less than a high-school education, making both the business owners and their workers particularly vulnerable.[22]

Figure 6[23]



A poor education can be a barrier to safety compliance among both workers and contractors. Hispanic workers that turn into small contractors are at an increased risk for not supplying the proper safety training and equipment to workers, since they may view compliance as a costly investment and may not have the funds to invest in training. In addition, they may be unaware of safety guidelines, the risks of non-compliance with OSHA, or how to receive safety training.

Immigrant owned businesses are not the only ones who will benefit from a more highly trained workforce. Not only can a lack of training be dangerous, but it can prove

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[22] Ibid.
[23] Center for Construction Research and Training, "Hispanic Employment in Construction," 12.

very costly to businesses. In 2002 the construction industry employed only 5.2% of the total workforce in the United States (BLS, 2006) , but accounted for 15% of all private industry injury costs. Construction injuries cost $4 billion in fatalities (40%) and $7 billion in nonfatal injuries, primarily driven by cases with days away from work.[24] This means that construction injuries cost businesses over $211 million dollars each week, making safety training a strategic investment for all construction businesses.

Because of the high cost incurred by construction companies due to injuries, businesses may actually save money by requiring a trained workforce and requiring safe practices. One study of construction laborers reported that, "laborers who received safety and health training during the study period were 12% less likely than nontrained laborers to file for workers' compensation. Among 16 to 24 years old workers, training was associated with a 42% reduction in claims."[25] This reduction in work-related injuries shows the effectiveness of safety training, especially for younger laborers who may be less experienced.

Common, and often avoidable, injuries result in workers' compensation payments, employee medical expenses, and legal costs, as well as wages paid during stoppages, administrative/accident investigation costs, and training and replacement costs for new employees. The following table shows the total cost to employees of

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[24] Geetha M. Waehrer et al., "Costs of Occupational Injuries in Construction in the United States." *Accident Analysis and Prevention* 39, no. 6 (November 2007): 1258-66.

[25] Xiuwen Dong et al., "Effects of Safety and Health Training on Work-Related Injury Among Construction Laborers," *Journal of Occupation and Environmental Medicine* 46, no. 12 (December 2004): 1222-28

minor injuries suffered by employees on a jobsite. It is clear that when even a simple sprain costs over $48,000 in both direct costs, such as medical expenses, and indirect costs, such as days lost at work, reducing these injuries could create substantial savings for businesses.

Figure 7[26]

	Direct Cost	Indirect Cost	Total Cost (per injury)
Laceration	$ 15,398	$16,937	$32,335
Sprain	$23,098	$25,407	$48,505
Fracture	$37,911	$41,702	$79,613
Concussion	$68,456	$75,301	$143,757

In addition to avoiding high costs due to accidents, companies that choose to provide insurance for their workers may negotiate lower prices if the company has a safety training program. One insurance carrier estimated that, "Having a training program in place would cause underwriting to consider discounting the annual premium for a client. The discount would be around 5% depending on risk (losses, experience, etc.)"[27]

One construction company said that,

[26] "OSHA's Safety Pays Program," Occupational Safety and Health Administration, accessed July 7, 2012, http://www.osha.gov/dcsp/smallbusiness/safetypays/estimator.html
[27] Workers Defense Project and Division of Diversity and Community Engagement at the University of Texas at Austin, Construction Emergency: The Hidden Cost of Workplace Injuries, report (Austin, TX: n.p., 2011), 11.

> …if we provide safety training, that's money we get back, if we provide safety equipment, that's money we get back, and then all the training and safety equipment is actually keeping workers from getting injured on the job, which keeps the insurance company from having to pay out, which keeps our premiums from going up. So it's a long road to get a return for your money, but yes, it is worth it, it does save us money in the long run.[28]

Not providing effective safety training to workers can be extremely costly to a business. "It only takes one accident to be astronomically expensive. If you have an accident that runs into $500 or $1 million…a smaller company could get run into the ground."[29] Safety training can be an inexpensive alternative to the cost of a worksite injury. While accidents always represent unexpected expenses that can bankrupt a small business, safety training can be included in project budgets. In addition, by educating workers about how to identify and avoid workplace hazards, worksite accidents can be reduced, saving companies money.

The current range of training options available to employers and workers in the Austin area include free trainings from the Texas Department of Insurance and the Hispanic Contractors Association. In addition, many large companies have internal safety directors that train new workers. However, when relying on current OSHA training materials, these trainings may not be sufficient unless they include individual training not outlined in published materials.

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[28] Ibid.
[29] Ibid.

As elsewhere, improving safety knowledge among Hispanic construction workforce in Texas could make a huge impact on the construction industry. Setting a foundation for safe business practices through worker and contractor education is essential in reducing preventable worksite accidents that result in excessive losses of both money and worker lives. Offering targeted training to some of the hardest to reach construction workers and contractors will create new opportunities for businesses to provide training to workers and improve safety for themselves and their workers.

Importance of Trainings in Texas

The creation of trainings tailored to Hispanic workers in Texas can serve as a significant start for improving safety trainings for Hispanic workers across the country. The construction industry in Texas is particularly dangerous and requires our attention. In 2007, a construction worker was killed on a Texas jobsite every two and a half days.[30] Furthermore, no other state had so many construction workers die on the job; 61 more workers died in Texas than in California, the state with the second-highest number of construction fatalities. Despite a decrease in fatal injuries between 2009 and 2010, Texas still had the highest number of workplace injuries, moving from 482 to 456.

[30]Workers Defense Project and Division of Diversity and Community Engagement at the University of Texas at Austin, *Building Austin, Building Injustice*,17.

California registered the second highest both years, moving from 409 to 302.[31] Given these conditions, it follows that creating effective training programs in the state with the highest rates of deaths in construction could significantly impact the entire industry.

Because improving safety in Texas could play a large role in decreasing worker injuries and deaths in the construction industry as a whole, the safety training program sponsored by WDP could be highly strategic. The trainings are being created in Austin by WDP, and the majority of trainings will be given to members in the Austin community; however, the same trainings will also be administered in El Paso and Houston through partnerships with Paso Del Norte Civil Rights Project (PCRP) and Houston Interfaith Worker Justice (HIWJ). The trainings offered across Texas will allow the opportunity to study its effectiveness and impact even outside of Austin. In this study, effectiveness of the training programs in all locations will be reviewed, but because WDP in Austin plays the most central role in the development and administration of the program, with the other cities only using materials developed by WDP, Austin will serve as the focal point for the study.

Having trainings concentrated in Austin will reflect the very hazardous worksite conditions which lead to a high number injuries and fatalities in other parts of the country. The majority of the Hispanic construction workers in Austin fall under the OSHA "hard-to-reach" category. According to 2009 survey data of Austin's 50,000

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[31]"Bureau of Labor Statistics, U.S. Department of Labor, "National Census of Fatal Occupational Injuries in 2010 (Preliminary Results)," news release, August 25, 2011, 11.

construction workers, 61% have less than a middle school education and 71% are monolingual Spanish speakers. Of these construction workers, 64% had received no health and safety training." [32] The need for specially designed training programs is clearly needed in Austin and can be implemented in other areas with similar work environments.

WDP chose to offer safety training to its Hispanic immigrant members due to dangers faced daily by so many of their members that participate in construction.[33] In addition to safety for individual workers, the new training programs also seek to educate contractors and small businesses on their OSHA responsibilities. This is justified on the grounds that the majority of fatal falls in the U.S. occurred in small establishments, making the need to educate small contractors very high. About two out of every three falls recorded between 2003 and 2006 occurred in small establishments with 10 or fewer employees, although only 30% of the construction workforce is employed in businesses of this size.[34] Across the country, "Even outside of construction, almost 42 percent of deaths investigated by OSHA were in establishments with fewer than 20 employees, although only 27 percent occurred in firms of that size. In contrast, only 6 percent of deaths occurred in establishments of the largest size

[32]Workers Defense Project and Division of Diversity and Community Engagement at the University of Texas at Austin, *Building Austin, Building Injustice*,17.
[33]Center for Construction Research and Training, "Hispanic Employment in Construction," *CPWR Data Brief*, October 2009, 1-17.
[34]Xiuwen Dong et al., " Fatal Falls among Hispanic Construction Workers." *Accident Analysis and Prevention* 41, no. 5 (2009): 1047-052.

category (more than 1,000 employees), but 26 percent occurred in firms of that size." [35] At WDP, many workers choose to become contractors, or are interested in becoming contractors, to earn more money and have more freedom in their work, but it is essential that they receive training to improve their understanding of safety and other OSHA regulations in order to improve worksite safety.

Conclusion

Construction is a highly dangerous industry, particularly for Hispanics. Small establishments have even higher rates of injuries, so Hispanics working for small contractors or acting as contractors themselves may be placing themselves at the highest risk. Because of this, it is vital that Hispanic laborers and contractors receive at least basic training on employer responsibilities under OSHA and safety training to ensure their own safety and the safety of the community. Safety in the construction industry should be a top priority, especially in Texas, where the Hispanic population plays an increasingly large role in the industry. The training programs at WDP will directly impact communities in Austin, El Paso, and Houston, which have large populations and a high number of construction deaths. An analysis of the new programs offered by WDP may allow us to improve the type of training needed for hard-to-reach workers in other states across the country, and possibly improve the wellbeing of not only Hispanic immigrant workers, but all workers in the industry.

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[35] John Mendeloff et al., *Small Businesses and Workplace Fatality Risk: An Exploratory Analysis* (Santa Monica, CA: RAND Corporation, 2006), 1-76.

3: Workers Defense Project Case Study: CEPA

The Workplace Justice Program to has expanded offer several educational and leadership building opportunities for construction workers, who make up the vast majority of workers who come to WDP for information on workplace rights and safety. Through a series of original courses, WDP seeks to educate and train workers and small employers on employment issues such as basic workers' rights, safety, discrimination, and the Family Medical Leave Act. Their objective is to improve their own safety and success on the job.

WDP has created an OSHA-funded training program, called "CEPA", for low-literacy, Hispanic, immigrant workers in construction. CEPA is a Spanish Acronym for ControlarPeligros, Electricidad, ProteccionesBajo OSHA, and Alturas. Translated this is Controlling hazards, Electricity, Protections Under OSHA, and Heights. This describes the four areas on which the program materials focus. In addition, when pronounced in Spanish, CEPA expresses a foundation or origin, and a sense of being authentic, which relates to the goal of setting a foundation of knowledge for safety on the job. Finally, when one pronounces "CEPA," it can also be understood as "sepa"; "to know," from the command form of the Spanish verb saber. In these senses, CEPA seeks to teach workers the foundations of safety, so that they can educate each other and change conditions on the job.

The CEPA program was created to meet the unique needs of the Hispanic construction community that WDP serves. It moves away from text-based materials

traditionally used by OSHA, and has instead created original methods and materials to educate workers on safety and their rights under OSHA. The program has expanded into other Hispanic communities in Houston and El Paso through a partnership under the grant with Houston Interfaith Worker Justice Center and the Paso Del Norte Civil Rights Project.

Looking at the effectiveness of CEPA will provide insight into how to improve safety trainings for Hispanic workers across the country. Although a low-literacy, Spanish-speaking, immigrant population makes up a large portion of construction workers, it has not been the primary target of traditional trainings. Currently, few studies evaluating the effectiveness of OSHA trainings have focused on non-English speaking participants. Although inclusion of trainees who speak English as a second language is widespread in union-based construction hazard-awareness training programs in the United States, the educational needs of this population still need further study.[36] The large amount of trainings implemented by WDP provides a valuable opportunity to evaluate the effectiveness of an innovative training program aimed at this important target audience across Texas.

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[36]Rosemary K. Sokas et al., "Trainer Evaluation of a Union-based Ten-hour Safety and Health Hazard-awareness Program for U.S. Construction Workers," *Construction Safety Training Evaluation* 13, no. 1 (2007): 56-63.

The Susan Harwood Training Grant Program

WDP operates its training program with funding from a Susan Harwood Training Grant provided by the United States Department of Labor in the Occupational Safety and Health Administration. The grants are awarded each year to non-profit organizations to provide training programs for workers. The focus seeks to,

> Provide training and education for workers and employers on the recognition, avoidance, and prevention of safety and health hazards in their workplaces, and to inform workers of their rights and employers of their responsibilities under the OSH Act. Target audiences include underserved, low-literacy, and workers in high-hazard industries.[37]

According to an OSHA publication,

> These are audiences who might otherwise not receive training, including small business workers and employers, hard-to-reach or low-literacy workers, and especially workers in vulnerable and high-hazard industries.[38]

WDP's member base is primarily Hispanic immigrants working in the construction industry, making this community an ideal target audience of the grant program. Because this population has not typically received this attention, WDP offers a valuable opportunity to evaluate the effectiveness of such aa training program in three

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[37]United States Department of Labor. Occupational Safety and Health Administration, accessed December 2, 2011, http://www.osha.gov/dte/sharwood/index.html.
[38]"Ibid.

major Texas sites. Few studies evaluating the effectiveness of OSHA trainings have focused on non-English speaking participants. A 2007 OSHA study concluded as much.[39] The evaluation of the training programs at the WDP will provide the federal program with new materials as well as serve as a guide for designing appropriate programs for the Hispanic immigrant labor force in construction.

In the next section I will give an overview of the most common materials and methods traditionally provided through OSHA and how these are insufficient for the Hispanic construction worker population. I will then discuss the non-traditional methods implemented by WDP within their CEPA program to illustrate how these methods better address the needs of this population.

Current Approach: Traditional OSHA Materials

OSHA officials recognize that traditional materials may not be relevant for hard-to-reach populations and look other programs and organizations, such as WDP, for the development of more appropriate methods and materials. Without the addition of new materials by these organizations, OSHA materials are not currently sufficient to cover the needs of the Hispanic immigrant population. The majority of materials developed exclusively through OSHA available for training workers are fact sheets, quick cards, and manuals which will be described in detail next. OSHA has developed these

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[39]Sokas et al., "Trainer Evaluation of a Union-based," 56-63.

materials to be administered as trainings or distributed to workers in trainings or at jobsites.

Fact Sheets

Fact sheets are double-sided, laminated 8.5 x 11 inch sheets. In general, the entire front and some of the back have text in two columns describing key points about a specific workplace hazard. OSHA suggests that groups read the fact sheets when working on group activities in order to form their answers.[40] Many, but not all, of these fact sheets are published in English and Spanish.

Although the fact sheets provide a lot of information, they are not always a viable method for information distribution among WDP students. In traditional OSHA training guides, attendees are typically left to read and understand the information on their own without any guidance and must use the information gathered on their own to answer questions later. Because of the low level of education, and sometimes the lack of literacy, these fact sheets are difficult to utilize during group activities at WDP. In addition, the size of the fact sheets does not allow for portability, and therefore may not be utilized on the job.

Quickcards

[40]"Back Facts: How This Book Works," Occupational Safety and Health Administration, accessed June 25, 2012, http://www.osha.gov/SLTC/healthcarefacilities/training/how_this_book_works.html.

Quickcards are double-sided, laminated sheets, about half the size of a regular sheet of paper. These cards have text on both the front and the back, highlighting the most important facts about a specific safety hazard. Some cards may also have small diagrams. Many, but not all, of these Quickcards are published in English and Spanish.

Although the Quickcards have a relatively small amount of information, the text-heavy handouts may still be too dense for a population lacking in literacy. In addition, in traditional trainings suggested by OSHA or in distribution to workers without the assistance of a workers' organization, individuals are left to understand the information on their own without any guidance

Manuals

Manuals range from textbook size manuals for long trainings to half-sheet sized, 20 (or more) page manuals on specific topics, such as employer rights and responsibilities.[41] Many of the manuals are in English and Spanish and provide extensive, rich information. However, the manuals may not be useful for the population that WDP is serving.

Although OSHA's traditional materials are rich in information, cover a wide variety of industry specific topics, and are offered in multiple languages, they are still not appropriate for use by the majority of construction workers in the Hispanic

[41]"Employer Rights and Responsibilities: Following a Federal OSHA Inspection," Occupational Safety and Health Administration, accessed June 25, 2012, http://www.osha.gov/Publications/osha3000.pdf.

immigrant population. Materials are completely text-based with few illustrations, making them very difficult for low literacy workers to utilize. Because of this, WDP has created a new training with innovative materials tailored for the Hispanic immigrant population.

CEPA: A Nontraditional Safety Training Program for Construction Workers

In order to address the shortcomings of the traditional OSHA materials discussed in the previous section, WDP has implemented more participatory methods with an emphasis on group learning. The CEPA program developed under Harwood Grant focuses not only on teaching workers about basic workplace safety standards in construction, but also on developing workers' leadership abilities. Because workers with the lowest levels of education and literacy may look to more educated and experienced workers for guidance on a worksite, it is important to develop these leadership skills within the population along with safe work practices.

CEPA trainings may be given in different time segments, allowing even the busiest workers to benefit from these safety trainings. WDP developed one long training module (given in either 2-hours or 4 hours, depending on the activities selected) that covers 4 themes that will be discussed in the next paragraph. CEPA also includes one shorter training (a 30-minute "tailgate" training) that briefly covers each of the main topics of the larger training, and which is intended to be given at worksites and community events.

The four themes of the training follow the acronym CEPA. The first section, C: Controlling workplace hazards, includes a discussion of Personal Protection Equipment and heat. Next, within the section E: Electricity, students discuss working safely with electricity, including working with damaged cables, power tools, in wet conditions, and under overhead power lines. The third section is P: Protections Under OSHA, which discusses the rights and responsibilities of workers and employers under OSHA. Finally A: Heights (the "A" refers to Alturas, which is Spanish for heights) discusses working safely at heights, including ladder and scaffold safety, as well as working along unprotected sides and edges. These four topics cover some of the most common fatal injury causes, allowing workers to improve their safety in the most key areas in a small amount of time.

Program Evaluation

WDP coordinated training programs in Austin, Houston and El Paso between January and April 2012. The training involved 282 individuals for a total of more than 607 hours. In Austin, WDP trained 147 total individuals (124 employees and 23 employers) for a total of 345 contact hours while in Houston, WDP trained 63 employees for a total of 118.5 contact hours. In El Paso, on the other hand, WDP trained 72 employees for a total of 144 contact hours.

The participants in the three-site training programs participated in two levels of evaluations that allowed WDP to understand the effectiveness of their innovative

trainings. The programs first assessed participant satisfaction, calling these Level 1 evaluations, and then measured the knowledge gained by the workers before and after the training, calling these Level 2 evaluations.

Level 1 evaluations allow trainees to express their satisfaction with the training. Trainees choose their satisfaction on a scale of 1 (Bad) to 5 (Excellent) for 10 categories: facilitator knowledge of material, facilitation style, quality of the information, quality of the activities, information easy to understand, clear presentation of information and examples, quality of safety manual, quality of safety flyers, quality of safety videos, and quality of safety training environment. In addition, participants are asked two survey questions. One asks whether or not a participant would recommend the training to others, and the other asks the participant whether the information in the training was completely new, mostly new, somewhat new, or not new at all.

Level I evaluations from the 282 individuals trained have shown a high degree of satisfaction with WDP's safety trainings, with an average of 93% according to the satisfaction ratings.[42] In addition, 98-100% of participants in each city would recommend the training to others, showing that even these busy workers felt that the training was worthwhile.

Most importantly, Level I evaluation data show that the material was mostly or totally new for most participants. On average, 71% of participants answered that the

[42]Satisfaction rating was determined by taking the total for the satisfaction ratings (10 questions with a maximum of 5 points each) and taking the total points given by the participant out of 50 total points.

information was either mostly new or totally new, showing that workers did not previously have the safety knowledge presented in the class prior to participating. This means that the information is meeting the needs of the community, presenting safety information based on OSHA guidelines on which they did not previously have knowledge.

Figure 8[43]

LEVEL I EVAL SUMMARY	AUSTIN	HOUSTON	EL PASO	AVG
Satisfaction Rating	94%	93%	93%	93%
Number of Trainees	147	63	72	282
Prior Familiarity with Information				
Totally new	46%	23%	47%	39%
Majority new	26%	40%	29%	32%
Somewhat new	24%	26%	19%	23%
Nothing new	4%	11%	4%	6%
Would Recommend Training				
Would recommend training	100%	98%	99%	99%
Would not recommend training	0%	2%	1%	1%

[43] Workers Defense Project, "Quarter 3 Report" (unpublished raw data, n.d.),5.

Level 2 evaluations include a pre- and post- test of safety hazard knowledge. These tests are administered in small groups that will be retained throughout the training. Each small group is shown three pictures with worksite hazards. The trainer has an evaluation form that corresponds to the worksite hazards present in each picture, and gives points for each correct response. At the end of the training, the groups are presented with the same pictures and are asked to point out the hazards again, but thistime must also identify the proper methods for remedying the issues. Correct answers correspond with points, and the trainer will mark off each correct answer given by the group.

Level 2 Evaluations for all cities show improvement from the pre- to the post-test, with an average of 90% on the post- tests. This shows that trainings accomplish the learning goals to a high degree, and that workers improve their understanding of the materials during the training.

Based on the results of the evaluations given to almost 300 participants, the CEPA training materials have a very positive impact on the knoweldge of participating construction workers. Material being presented is new for a majority of participants, showing that the trainings are filling a knowledge deficit for Hispanic immigrant construction workers in Texas. In addition, trainees are highly satisfied with the training and almost 100% of participants would recommend the training to others. In order to better understand what differentiates CEPA trainings methods from traditional methods, I will discuss the unique instuctional tools and methods utilized by WDP.

Instructional Tools and Methods

WDP utilizes methods not traditionally used in OSHA trainings in its CEPA program. WDP's training draws upon a "participatory approach," which emphasizes active engagement and learning-by-doing. Peer-to-peer exchanges promote better understanding and allow workers to share their own knowledge and experience. This approach is geared toward a very broad audience with diverse education and literacy levels, allowing these training to reach all workers at WDP. These methods include Small Group Activity Method (SGAM), Videos, Issue Recognition, Skits, and Demonstration. Each of these methods has specific benefits over traditional methods which will now be described in depth.

Small-Group Activity Method:

The small-group activity method (SGAM) is used throughout the training in various ways in order to use the combined knowledge of trainees to work through real-life scenarios. The SGAM uses a three step process. The process begins with small group tasks. In this step the trainees are divided into small groups to work on an activity or task. They generally work in groups of three or four at a table. They work through the task together, allowing workers to share their own background knowledge, as trainees range from novices to experts in different fields.

The next step is called "The Report-Back". Each group selects a representative to write down responses. This representative volunteers to write down the collective responses

of the group. The responses are written on a large sheet of paper that can be seen by the class when posted on the wall. After the group presents their responses, the rest of the class gives their input. The last step is the summary. After an issue is discussed by the class as a whole, the trainer will reiterate the key points given by each group and fill in any points that were missed by the group. [44]

The small-group activity method allows workers from different educational backgrounds and skills to share their knowledge to solve a problem together. This is beneficial to workers since it mimics jobsite collaboration, where workers must work together to solve a problem. Workers are able to bring in their prior knowledge and relate to the problems from their own experience. In addition, because some workers in this population may have difficulty reading or writing, working in a group with others who can take over these tasks will allow them to complete the material without having to have literacy skills themselves. This is a huge benefit over traditional methods for workers who have low levels of literacy, since in traditional methods each individual is asked to work through written material alone.

Videos:

WDP has created original videos exclusively for the CEPA trainings. The videos are in Spanish and the actors in each clip are experienced workers from the organization. Each video addresses a separate section of CEPA. The workplace

[44]The Public Health Institute and The Labor Institute, *A Just Transition for Jobs and the Environment*, report no. 7.2 (New York: The Public Health and Labor Institutes, 2000), 9.

hazards/heat safety, electricity safety, and height safety videos implement similar formats. In each of these videos a worker plays the part of interviewer and another worker plays the role of expert. The expert guides the interviewer around a mock active worksite, allowing the interviewer and viewer to witness jobsite hazards. The expert also demonstrates the proper way to avoid or remedy the situation to avoid an accident or injury. Unique aspects of some CEPA videos will be highlighted by each section of the training.

Controlling Workplace Hazards Video

In the case of the video illustrating workplace hazards, which includes heat safety, the expert explains the symptoms of heat stress and heat stroke while drawings are shown that illustrate the symptoms being described. The expert also describes what to do in the event that the viewer or a co-worker starts to display these symptoms, with accompanying illustrations. The expert then addresses the steps to take to avoid heat stress, and either video or pictures that show the actions are displayed while the expert talks.

The second half of the video presents different scenarios. In each scenario a worker describes symptoms he is having or actions he has taken that day (such as drinking coffee). Trainees are then asked to respond to the worker using the information that was presented in the informative part of the video.

Protections Under OSHA Video

The video that accompanies the "Protections Under OSHA" section of the training protections under OSHA is different from the other video formats created for CEPA. This video shows a scenario in which a worker is asked by a boss to perform a job unsafely. He later confronts the supervisor, letting him know that a worker was injured through the unsafe practice and that they need new equipment. The boss threatens to fire him if he continues questioning his practices, and tells him to take a break until he has decided to comply. The video then pauses for three different scenarios in which workers present jobsite issues. Viewers are then asked to respond to the scenarios using information discussed previous to the video.

After the break, the video returns to the scenario with the worker walking along the street away from the worksite. He comes to WDP site where he asks to speak to somebody and then describes the situation at the jobsite. WDP representative lets the worker know that he has done the right thing by coming to WDP after his boss would not acknowledge the unsafe practices. She lets him know that he can file a case with OSHA anonymously and that OSHA is not concerned with immigration status. Illustrations and photos that go along with the information are shown while WDP employee describes OSHA and how to file a case online or on paper.

Using videos that depict jobsite hazards provides a benefit to workers since it is a very explicit method of displaying worksite hazards and remedies. Unlike traditional methods, it does not require workers to decipher diagrams or read information. This is highly beneficial to workers who may have a low level of education. Not only does this

eliminate the need for literacy, workers with low levels of education may also have a difficult time understanding diagrams if they are not familiar with standard symbols.

Issue Recognition Method

In addition to original videos, WDP has incorporated issue recognition methods to better reach construction workers attending safety trainings. This is a variation of the small-group activity method (SGAM) discussed previously. In the issue recognition method, pictures of jobsite hazards are passed out to each small group. Each group is asked to identify the hazards in the photo, with one volunteer from the group writing down the answers on a large sheet of paper. The group then comes to the front of the class to discuss the issues they found while a large version of the photo is shown on a computer presentation. The rest of the class can offer more ideas that may have been missed, and the trainer emphasizes important points and fills in any information that was missed.

This method eliminates the need for literacy. Workers representing all education levels can visually identify hazards that they normally see on a jobsite. Because the only participant that is writing is a volunteer, workers do not need to identify what they cannot read or write. Workers that can read or write will offer to do this job. In addition, it allows the workers to practice identifying hazards from a picture of a real worksite, making the lessons learned during this activity easily transferable to their real jobs.

Skits

Another method employed by the CEPA training program is skits. Many different skits are used to help workers learn about different topics in the training. One of the most effective is called "Know Your Rights: Acquiring a Job." The trainer asks for two volunteers. One volunteer plays the role of a worker looking for temporary labor. The other volunteer plays the part of the boss looking for a worker. The only instructions given are that the boss will approach the worker and say that he is looking for a worker to do construction work, and ask the worker if he can do the work. The worker then asks for information about the job. After the volunteers are finished, the audience is then asked to discuss what information they now have about the job, and what information is still needed. The trainer fills any missed information after the discussion is complete. In order to respond to the scenarios presented during the videos, workers are asked to present a skit in their small groups. One group member plays the troubled worker from the video, and the others offer him advice based on what they have learned through the videos and other information presented in the training.

Skits are a very beneficial learning tool for the kind of workers that WDP serves. Skits allow workers to gain experience addressing a situation with guidance from other workers and the instructor. In the case of safety violations, addressing the situation may be scary and uncomfortable, so receiving feedback before implementing practices in real life can build knowledge and confidence. In addition, the trainer is able to see that trainees understand the information well enough to put it into practice without needing a lengthy reiteration of the information.

Demonstrations

Demonstrations are another nontraditional method utilized in CEPA trainings. When discussing personal protection equipment and height safety, the trainings rely heavily on demonstrations. The trainer asks for a volunteer familiar with the equipment, such as a ladder or harness, to come to the front of the class to demonstrate how to inspect and use equipment. The trainer points out any details or information that may have been missed and emphasizes the important points again.

Demonstrations by worker trainees are beneficial to both the instructor and the trainees. Trainees are able to see the correct way to utilize equipment through a hands-on demonstration in the classroom. In addition, asking for an expert volunteer allows trainees to share their information with others, building confidence and allowing workers to learn from each other. Also, because the instructor may not be an expert in all materials, actual experts can demonstrate the use of more materials.

Based on the pre-and post- test training, participants are being reached relatively effectively by the combination of these methods. Initial evaluations of the program convey that participants understand the information presented in the course and improve their knowledge of the material during the training. Although these methods have been successful and initial findings are highly optimistic, there are still challenges in understanding the true effectiveness of the these trainings. These obstacles and recommendations for addressing these challenges will be discussed in the following section.

Challenges and Recommendations

So far, the CEPA trainings in Austin, El Paso, and Houston seem effective at training the immigrant workers in each city. However, there are limitations in collecting data and understanding the true effectiveness of the program. First of all, gathering information with a low-literacy population provides many challenges. From my observations of various trainings, administering the Level 1 evaluations was a particularly difficult challenge since it is one piece of material that is text-based.

To begin, although the trainer or volunteers were always present to help aid workers complete surveys, guiding individuals significantly increases the time necessary to fill out the evaluations. This can prove discouraging to workers who do not understand why paperwork not directly related to increasing their knowledge of safety is necessary. Workers are busy, and because trainings are either evenings or weekends, participants are eager to finish quickly and may be discouraged by the long survey.

Another challenge faced in administering these surveys was true anonymity for survey answers given by low literacy respondents. Workers who are unable to read may choose to have a fellow worker or volunteer read the survey and transcribe their answers. Although this is an effective method for completing the survey, it reduces the level of anonymity associated with the answers, and these workers may be less likely to give honest criticism. Answers may be skewed positively because workers do not want to express their criticism out loud.

Finally, because of the low level of formal education prevalent among these attendees, many workers were unfamiliar with survey instructions. This problem arose

particularly with scalar choices which, although explained thoroughly by the volunteer or trainer, were often an unfamiliar concept to workers with little formal education. Because of this, some evaluations were filled out incorrectly, such as multiple numbers chosen on the satisfaction scale, making the evaluations difficult to decipher, and often, inadmissible.

In order to improve the speed, anonymity, and ease of the Level 1 evaluations, changes need to be made.

A top priority for improving accessibility of evaluations is to shorten the evaluations to include fewer questions. This will decrease the time needed to conduct the surveys and allow workers to fill out less information not directly related to their own learning. In addition, instead of descriptive sentences for each question, the aspect to be rated can be condensed into a single word. For example, trainees might instead be asked to rate information, activities, videos, and instructor. This will improve the ease of reading as well as the speed at which evaluations can be completed.

Next, the rating system, which is often a source of confusion to workers, should be simplified. Instead of five satisfaction options, only three options can be given. Instead of a scale of 1-5, choices could be “good”, “okay”, and “bad” and have corresponding smiley faces. This will not only decrease confusion for workers unfamiliar with scalar ratings, but it will also improve the ability of low-literacy workers to fill out the survey on their own since they will be able to identify the facial expressions.

Finally, the instructor should read the evaluation out loud to allow workers to follow along with the evaluation as a group. He should read each answer choice slowly,

allowing time after each answer choice for participants to choose the answer. This should allow participants to follow along with instructor to fill out the survey on their own, regardless of reading ability.

Although these changes will improve the ease of administering the evaluations to large groups of workers with a variety of education levels, the disadvantages must also be considered. These changes may decrease the richness of the data available to understand the satisfaction levels of participants with different aspects of the training. This is a trade-off that has to be weighed against the benefits.

Level 2 evaluations are already administered in groups with workers identifying safety hazards orally without the need to read or write any information. However, this method also supplies its own challenges. For example, because pre- and post- evaluations are given in groups, it is impossible to determine individual learning. Although the trainer will ask each individual to participate, it is possible for individuals to avoid questions to which they don't know the answer when another group member is able to answer the question. Because one of the goals of the CEPA trainings is to more effectively reach individual workers, it is important to have a method to confirm learning. In addition, especially in large trainings it is time-consuming to go group by group through three different pictures at the beginning and end of each training. In addition, it is possible, that the earliest groups can share answers with later groups, skewing the responses for later groups

In order to improve the data given in Level 2 evaluations, some changes can be implemented.

First of all, in order to continue to encourage group learning but ensure that each individual is responsible for retaining the information, groups should be split into only 3 people. This will allow each individual to show their understanding of the specific material. Each person can be designated as the leader for a different picture in the set of three hazard identification pictures and will be asked to answer questions pertaining to this picture first. Other group members will contribute only after the picture leader has answered. Individual names can be placed on the pictures for pre- and post- evaluations. Although the total group score data will continue to be collected, individual scores can also be evaluated.

Finally, in order to improve the amount of time necessary to administer the evaluations, trainers should preferably also have a trained volunteer to help with the evaluations. Evaluations can be done in two groups simultaneously, decreasing the amount of time from beginning to end of the evaluations and also reducing the possibility that groups will gain an unfair advantage by overhearing or sharing information. This will greatly improve the amount of time taken up during the training to administer these evaluations. In addition, because worker members often serve as volunteers during these trainings, this can also serve as a valuable leadership opportunity for construction workers in the WDP community to review safety material as well as improve their communication skills with other workers.

Limitations And Future Research

By April 2012, WDP's CEPA program had already trained almost 300 workers in three different cities in only a 4 month period. However, in addition to the problems discussed regarding Level 1 and 2 evaluation data, there are other obstacles to understanding the true success of these trainings. Because of the short duration of this program at the time of this study, there is limited data available as to the knowledge retention and implementation of the information given at the trainings. Although WDP will administer Level 3 evaluations which will discuss these two issues with past participants, there will also be challenges to administering these surveys.

One of the issues that can be anticipated through observation of the membership base at WDP is that the immigrant construction workers are a very transient workforce. Workers often change cities depending on work availability and sometimes return to their home countries. It was my experience at WDP that cell phone numbers are often out of service within a month of the trainings. Attempts to recruit participants of past trainings are often impossible due to this issue. Although a worker has a functioning number at their first training, they may not pay their bill the following month, causing a cancellation or suspension of their account. These workers rarely contact the organization to update their information, and it is instead necessary to contact these workers when they come to the organization again for other activities if it is possible. Because of this, WDP may have to rely on contacting members that consistently participate in the organization in order to conduct Level 3 evaluations. This may skew

the data since these are members that take an active role in promoting WDP rather than participants who may not have been as invested in the trainings.

Another challenge that may arise in trying to contact workers months after the initial training is that workers have extremely busy work lives and may not be willing to take time out to answer lengthy survey questions without any sort of compensation. Creating a training schedule in which workers were able to attend was a challenge I saw faced during these trainings. Although trainings were initially on Thursday nights during the Winter and early Spring, in late Spring attendance at these trainings decreased drastically despite the fact that workers expressed interest in coming during Tuesday night announcements. Because of this, trainings were moved to weekend days in order to improve attendance. Although this did improve attendance, it is clear that workers' schedules are highly seasonal and may even change depending on the weather or available projects.

Finally, even if WDP is successful in contacting workers to participate in a survey about their retained knowledge months after a training, information regarding the implementation of safe working practices will be based only on the answers of the participants, but no observations of actual worksites will be made. Workers may not want to admit that they have not put safer practices into place, also affecting the validity of the data.

In addition to looking further into the level of retention of the trainings months afterwards, there is more research that could be beneficial to improving trainings for Hispanic immigrant construction workers. There are many questions that remain

unanswered through the data available from these trainings that could greatly affect the creation of better materials. For example, detailed research could be done to find out what elements and methods are most and least effective for participants. Also, a more qualitative study comparing effectiveness of the innovative methods implemented in CEPA versus traditional methods in both Hispanic and white, non-Hispanic workers could show whether these methods could reach traditional students better as well. Finally, although the CEPA program addresses the safety hazards that cause the most deaths in construction, more research could be done into what information workers still lack after these trainings.

This information could help lead to the development of more effective training materials not only for Hispanic construction workers, but for all workers in this highly hazardous industry. In addition, by analyzing the most effective methods to reach low-literacy workers, trainings can be expanded beyond construction into other industries utilizing similar methods with different material.

4: Conclusion

Based on the data collected from these trainings, the methods being implemented in the CEPA trainings through WDP and the partner organizations are highly successful in reaching the Hispanic, immigrant, worker demographic encountered in Austin, Houston, and El Paso. However, more research is needed to fully understand the extent of the program's success and whether the methods are truly effective in educating workers on necessary workplace safety. Because this demographic makes up a large portion of the construction workforce in Texas, a highly dangerous industry, it is extremely worthwhile to understand how to better reach and train these workers since traditional methods are inadequate.

Personal Note

Because I was able to witness the trainings implemented at WDP as well as recommend changes to the coordinator of the grant, I was able to see how effective these methods were for the construction workers attending these courses. Near the beginning of my volunteer work I sat through a 10 hour OSHA safety course that took place over two days. This training was given before the implementation of CEPA, using a large traditional OSHA manual, even though accompanying activities had been previously adapted by a day-laborer organization in the Northeast. Workers struggled to

follow along with the text-heavy material, as they were asked to read portions within their group in order to questions printed in the manual. I was seated at a table with workers who often looked to me to read the questions aloud or look for the answers within the text. Simply relying on the text was not an effective method for learning and sharing information, especially since I was the least experienced participant, but was answering the majority of the questions.

I was able to sit through many CEPA program classes after they began administering the new program. It was a drastic change from this first experience. Instead of searching for answers to questions through a dense manual, workers were asked to act out the solutions and present answers in front of the class as a group. No worker had the opportunity to sit idly or rely on others for the answers since they all had a role to play in each activity. In addition, workers were able to share their occupational expertise with others in the class regardless of their literacy levels. Workers' confidence visibly improved as they were able to take pride in giving a demonstration of safety equipment or correctly responding to a difficult situation in the context of a skit. Workers were able to practice the skills they were learning, not only pertaining to safety, but also to defending their right to safety, through skits in which workers had to respond to a situation with a difficult boss.

The videos were one of the most memorable elements for attendees of the trainings. These videos were made at WDP, and workers were highly engaged in the videos, especially when they recognized the workers who played roles in the movies. It

showed the attendees that the organization encouraged leadership among its members and valued the input of every worker.

It was clear that the nontraditional methods used in CEPA were much more effective in reaching the low-literacy workers in the organization. The biggest struggle in every training was the evaluations, but as a requirement of the grant under OSHA, these had to be administered. Improvements in this area would greatly decrease the time and frustration required by workers who were not familiar with surveys. In addition, it would help improve WDP's understanding of effective training elements and allow them to continue to improve their training methods. At the end of my volunteer experience, WDP had created a shorter, picture-based survey close to what was described in the recommendations, although it had only been implemented a few times. Although this survey did provide an improvement in time and confusion, it was still difficult for some workers who were not literate and could not follow the survey structure even when read aloud. This is a reflection of the unique challenges being constantly faced by WDP and the need for increasingly innovative training methods to reach the hardest to reach workers.

WDP continues to invest in these trainings and will continue to administer them with ongoing improvements. The successful elements of these original trainings may be easily transferable to other hard-to-reach workers in different industries across the country, and may even provide more engaging trainings for traditional workers.

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